

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1.-51. (Cancelled)

52. (Previously Presented) An image-sensing apparatus as claimed in claim 56, further comprising:

MOS transistors connected to the individual pixels by way of output signal lines so as to serve as load resistors or constant-current sources.

53.-55. (Cancelled)

56. (Previously Presented) An image-sensing apparatus comprising:
a plurality of pixels, the pixels each including:

a photodiode, having two electrodes, that produces an electric signal in accordance with amount of incident light;

a first MOS transistor having a first electrode and a gate electrode connected to one electrode of the photodiode and a second electrode; and

a second MOS transistor having a first electrode, a second electrode, and a gate electrode connected to the first and gate electrodes of the first MOS transistor;

a third MOS transistor having a first electrode to which a direct-current voltage is applied, a second electrode, and a gate electrode connected to the second electrode of the second MOS transistor, the third MOS transistor amplifying a signal output from the second electrode of the second MOS transistor;

a fourth MOS transistor having a first electrode connected to the second electrode of the third MOS transistor, a second electrode connected to an output signal line, and a gate electrode connected to a line select line; and

a controller that makes the individual pixels perform image sensing in such a way that the electric signal output from the photodiode is converted natural-logarithmically by feeding a first voltage to the second electrode of the first MOS transistor so as to make the first MOS transistor operate in a subthreshold region below a threshold value thereof, wherein the controller resets the individual pixels by, in each pixel, feeding a second voltage to the second electrode of the first MOS transistor so as to permit a larger current to flow through the first MOS transistor than before feeding the second voltage thereto, and

a capacitor having one end connected to the second electrode of the second MOS transistor, the capacitor being reset through the second MOS transistor when a reset voltage is fed to the first electrode of the second MOS transistor.

57. (Previously Presented) An image-sensing apparatus as claimed in claim 56, wherein the pixels each further include a fifth MOS transistor having a first electrode connected to the second electrode of the second MOS transistor, a second electrode to which a direct-current voltage is applied, and a gate electrode; wherein the capacitor can be reset through the fifth MOS transistor when a reset voltage is fed to the gate electrode of the fifth MOS transistor.

58. (Previously Presented) An image-sensing apparatus comprising:
a plurality of pixels, the pixels each including:
a photodiode, having two electrodes, that produces an electric signal in accordance with amount of incident light;
a first MOS transistor having a first electrode and a gate electrode connected to one electrode of the photodiode and a second electrode; and
a second MOS transistor having a first electrode, a second electrode, and a gate electrode connected to the first and gate electrodes of the first MOS transistor;
a third MOS transistor having a first electrode to which a direct-current voltage is applied, a second electrode, and a gate electrode connected to the second electrode of the

second MOS transistor, the third MOS transistor amplifying a signal output from the second electrode of the second MOS transistor;

a fourth MOS transistor having a first electrode connected to the second electrode of the third MOS transistor, a second electrode connected to an output signal line, and a gate electrode connected to a line select line;

a capacitor having one end connected to the second electrode of the second MOS transistor; and

a controller that makes the individual pixels perform image sensing in such a way that the electric signal output from the photodiode is converted natural-logarithmically by feeding a first voltage to the second electrode of the first MOS transistor so as to make the first MOS transistor operate in a subthreshold region below a threshold value thereof,

wherein the controller resets the individual pixels by, in each pixel, feeding a second voltage to the second electrode of the first MOS transistor so as to permit a larger current to flow through the first MOS transistor than before feeding the second voltage thereto.

59. (New) An image-sensing apparatus as claimed in claim 58,
wherein the first, second, third and fourth MOS transistors are N-channel MOS transistors.

60. (New) An image-sensing apparatus as claimed in claim 58,
wherein the first, second, third and fourth MOS transistors are P-channel MOS transistors.

61. (New) An image-sensing apparatus comprising:
a plurality of pixels, the pixels each including:
a photosensitive element, having two electrodes, that produces an electric signal in accordance with amount of incident light;
a first MOS transistor having a first electrode and a gate electrode connected to one electrode of the photosensitive element and a second electrode; and

a second MOS transistor having a first electrode, a second electrode, and a gate electrode connected to the first and gate electrodes of the first MOS transistor;

a third MOS transistor having a first electrode to which a direct-current voltage is applied, a second electrode, and a gate electrode connected to the second electrode of the second MOS transistor, the third MOS transistor amplifying a signal output from the second electrode of the second MOS transistor;

a fourth MOS transistor having a first electrode connected to the second electrode of the third MOS transistor, a second electrode connected to an output signal line, and a gate electrode connected to a line select line;

a capacitor having one end connected to the second electrode of the second MOS transistor; and

a controller that makes the individual pixels perform image sensing in such a way that the electric signal output from the photosensitive element is converted natural-logarithmically by feeding a first voltage to the second electrode of the first MOS transistor so as to make the first MOS transistor operate in a subthreshold region below a threshold value thereof,

wherein the controller resets the individual pixels by, in each pixel, feeding a second voltage to the second electrode of the first MOS transistor so as to permit a larger current to flow through the first MOS transistor than before feeding the second voltage thereto.

62. (New) An image-sensing apparatus as claimed in claim 61, further comprising:

load resistors or constant-current sources connected to the output signal line, a total number of the load resistors or constant-current sources being smaller than a total number of the pixels.

63. (New) An image-sensing apparatus as claimed in claim 62,

wherein the load resistors or constant-current sources each comprise a resistive transistor having a first electrode connected to the output signal line and a second electrode and a control electrode connected to a direct-current voltage.

64. (New) An image-sensing apparatus as claimed in claim 63,
wherein the third transistor is an N-channel MOS transistor, and
wherein a direct-current voltage applied to a first electrode of the third transistor is
higher than the direct-current voltage applied to the second electrode of the resistive
transistor.

65. (New) An image-sensing apparatus as claimed in claim 63,
wherein the amplifying transistor is a P-channel MOS transistor; and
wherein a direct-current voltage applied to a first electrode of the amplifying
transistor is lower than the direct-current voltage applied to the second electrode of the
resistive transistor.